NOTES.

WE understand that the vacancy in the Assistant-Directorship of Kew Gardens, caused by the appointment of Mr. D. Morris as Commissioner of Agriculture for the West Indies, will not be filled up. Mr. S. T. Dunn has been appointed Secretary to the Director.

THE *Botanisches Centralblatt* states that Prof. P. Knuth, of Kiel, is starting this month on a scientific expedition round the world, extending over from eight to ten months. He proposes a considerable stay in Buitenzorg, Java, visiting India on his way, and afterwards China and Japan, Honolulu and North America. Prof. K. Goebel, of Munich, is also starting, this autumn, on a botanical journey to Australia and New Zealand.

THE banquet of the Chemical Society to those of its past-Presidents who have completed fifty years' fellowship of the Society, which was postponed last June owing to the lamented death of the senior past-President, Lord Playfair, is now arranged to take place on Friday, November 11, at the Hôtel Métropole. The past-Presidents who will then be entertained are:—Sir J. H. Gilbert, F.R.S., Sir Edward Frankland, F.R.S., Prof. Odling, F.R.S., Sir F. A. Abel, Bart., F.R.S., Dr. A. W. Williamson, F.R.S., and Dr. J. H. Gladstone, F.R.S.

PROF. S. SCHWENDENER, of the University of Berlin, has been made a Knight of the Order *pour le mérite* in the class of science and art. We learn, from the *Botanical Gazette*, that the Order was founded by Frederick the Great, as a mark of distinction for military service; but the statute was revised in 1842 by Frederick William the Fourth, to include scientific men and artists of distinction. The latter class is limited to thirty Germans and thirty foreigners. The order is practically conferred by vote of the members. Prof. Schwendener is the only botanist who has been elected.

UPON the nomination of the Director of Kew Gardens, Mr. C. A. Barber has been appointed Government Botanist at Madras, in succession to the late Mr. M. A. Lawson.

THE Welby Prize of 50*l.*, offered for the best essay on "The causes of the present obscurity and confusion in psychological and philosophical terminology, and the directions in which we may hope for efficient practical remedy," has been awarded to Dr. Ferdinand Tönnies, of Hamburg.

AT the national observatory upon the Pic du Midi, a few days ago, two busts of General Champion de Nansouty and the engineer, M. Vaussenat, the founders of this useful meteorological establishment, were unveiled. M. Mascart, to whose suggestion the erection of the busts is due, and M. Baillaud, director of the Toulouse Observatory, delivered addresses to an audience of about five hundred persons who had assembled in the observatory.

THE handsome amphitheatre at the new Sorbonne has inscribed on the ceiling (says the *Chemist and Druggist*) the names of forty-five illustrious chemists. England is well represented by Cavendish, Priestley, Wollaston, Dalton, Davy, Faraday, Graham, and Griess—eight in all. The twenty-six French names are Lavoisier, Berthollet, Leblanc, Proust, Vauquelin, Thénard, Gay Lussac, Dulong, Chevreul, J. B. Dumas, Dessaignes, Balard, Boussingault, Pélouze, Laurent, Gerhardt, Regnault, Péligot, Cahours, Ebelmen, Fremy, Wurtz, Henri St. Clair Deville, Debray, and Pasteur. Sweden is represented by Scheele and Berzelius, Russia by Zinin and Butlerow, Belgium by Stas, Switzerland by De Marignac, and Germany by Mitscherlich, Wöhler, Liebig, Kolbe, and Kekulé.

SIR WILLIAM MACCORMAC, BART., and Sir Francis Laking have been appointed Knights Commander of the Royal Victorian Order, and Mr. A. D. Fripp and Fleet-Surgeon A. G. Delmege have been appointed Members of the Fourth Class of the same Order, in recognition of their services in connection with the recent accident met with by H.R.H. the Prince of Wales. The Royal Victorian Order is bestowed upon "such persons, being subjects of the British Crown, as may have rendered extraordinary, important, or personal service to Her Majesty, her heirs and successors, and who have merited Her Majesty's royal favour."

THE Harveian Oration will be delivered by Sir Dyce Duckworth on Tuesday next, at the Royal College of Physicians. The Bradshaw Lecture will be delivered by Dr. W. M. Ord on Thursday, November 10. The Goulstonian Lectures will be given next year by Dr. G. R. Murray, who has taken for his subject the Pathology of the Thyroid Gland. The Lumleian Lectures for next year will be given by Dr. Samuel Gee. The Croonian Lecturer for 1899 is Prof. Bradbury, and for 1900 Dr. F. W. Mott, F.R.S.

A MEETING of the Institution of Mechanical Engineers will be held on Wednesday and Thursday evenings, October 26 and 27, at the Institution of Civil Engineers, Great George Street, Westminster. The chair will be taken by the president, Mr. Samuel W. Johnson, at half-past seven p.m. on each evening. The following papers will be read and discussed, as far as time permits:—"Electric installations for lighting and power on the Midland Railway, with notes on power absorbed by shafting and belting," by W. E. Langdon; "Results of recent practical experience with express locomotive engines," by Mr. Walter M. Smith; "Mechanical testing of materials at the locomotive works of the Midland Railway, Derby," by Mr. W. Gadsby Peet.

A CIRCULAR informs us of a proposal to place in Corsock Parish Church, by half-guinea subscriptions, a suitable memorial to the memory of Prof. James Clerk Maxwell. There is already in the church a memorial to the memory of his father, John Clerk Maxwell, by whose influence and exertions the church was originally built. "This church," we read, "is chosen for the memorial, as the Professor's connection with it through life was very close. He was led to it as a child by his father; taught in its Sabbath School; was ordained an elder within its walls, and acted as such up to the time of his death; gave liberally towards its endowment, and the first and largest subscription towards the manse; was a trustee of the church and properties; and otherwise interested himself in its behalf." Subscriptions for the memorial may be sent to the Rev. George Sturrock, The Manse, Corsock, by Dalbeattie, N.B.

THE fifth International Congress of Hydrology, Climatology and Medical Geology, was held during last and part of the present week at Liège, Belgium, under the patronage of H.R.H. the Crown Prince of Belgium, and the Presidency of the Minister of Agriculture. The Congress was well attended by representatives of various nationalities. Many important communications were read and discussed in the various Sections, but the most interesting was an address given before the whole Congress by Prof. Walthere Spring, Professor of Chemistry at the University of Liège, on the colours of natural waters. Prof. Spring showed experimentally that the true colour of pure water is blue as in the Lake of Geneva, and that this colour is the colour proper to the water, and is not due to a mere reflection from the surface, nor from suspended particles in the water. When pure water has a very slight cloudiness, due to the presence of finely divided nearly white or colourless particles in suspension, even if these are absolutely colourless, as in the case of very finely divided rock crystal, a yellow tint is given to the water, which, together with the natural blue proper to the water itself produces a green colour, as in the cases of the Lakes of Neuchatel and of Constance. He remarked that it had been noted by various observers that the water of certain lakes usually green becomes occasionally absolutely colourless, and this he showed was due to the washing into the lakes of a fine mud of a reddish tint due to oxide of iron, which neutralises the green colour of the water, rendering it for the time being perfectly colourless. In connection with the Congress, interesting excursions were made to visit the bathing establishments, and to inspect the sanitary arrangements of Ostend and Middlekerke, Spa, Chandfontaine, and Aix-le-Bains. The Sanitary Institute was represented by Dr. Corfield, the Professor of Hygiene and Public Health at University College, London, who was elected an Honorary Vice-President of the Congress, and was also appointed the English Member of an International Committee which was formed for the purpose of inquiring into the means to be adopted for the preservation of the purity of the sources of natural mineral waters.

A COMPLIMENTARY dinner was given to Prof. Virchow at the Hôtel Métropole on Wednesday in last week. The chair was occupied by Lord Lister, and more than two hundred representatives of medical science and practice were present. Lord Lister, in proposing the toast of the evening, dwelt upon the versatility of the genius of the distinguished guest, his eminence as a pathologist being equalled by his reputation as an anthropologist and antiquarian. He referred particularly to Virchow's "Cellularpathologie," which work, he remarked, "swept away the false and barren theory of a structureless blastema, and established the true and fertile doctrine that every morbid structure consists of cells which have been derived from preexisting cells as a progeny. Cellular pathology is now universally recognised as a truth. Even those morbid structures which deviate most from the normal structure are known to be derived as a progeny from normal tissue—from normal cells, driven to abnormal development by injurious agencies." In acknowledging the toast, Prof. Virchow made allusion to Huxley and his work in these words: "I have been touched by the confidence you have placed in me in choosing me to renew the remembrance of the great investigator whose commemoration we have just been celebrating. My task the other day demanded that I should demonstrate Huxley's influence upon the development of medical science. To-day I wish to emphasise that his merits in anthropological and ethnological respects are so great in the eyes of German investigators that they alone would suffice to procure immortal reverence for his name. We shall not cease to follow in his footsteps and to defend the place which he has assigned to man in nature. Together with you we will try to clear up in every direction the biological history of man. May this task still further confirm and strengthen the solid union of English and German science. May the corporations of Great Britain and Ireland, which form a bulwark of medical science and practice that has remained unshaken for centuries, continue to give the world by teaching and example a guarantee that the results of our science may benefit mankind in an ever increasing degree."

INOCULATION against plague has been accomplished on a very large scale at Hubli. The present population of Hubli is about 40,000, and a correspondent of the *Times of India* reports that up to September 7, 35,000 had been inoculated as a protection against plague, while about two-thirds of this number had been inoculated twice. Out of the whole proportion, therefore, there only remained about 5000 people who had not been inoculated at all; and by far the greater number of deaths which occurred were amongst these people. The returns for the first week in September show amongst 32,000 inoculated persons 69 attacks, and amongst 8500 uninoculated 417 attacks, which facts speak for themselves. The chief medical officer, Dr. Leumann, is writing a report on the results which he has obtained from inoculation, and this ought to prove most interesting not only to those who are connected with plague, but to all the races who live in India. It is to be hoped that the report will be widely distributed, in order that the practical proofs which have been obtained may become the means of giving confidence to the wavering, and to those who at present regard the system of inoculation with fear, and are disposed to treat it with resistance.

A TRIBUTE to the genius of Lord Kelvin is paid by Prof. Oliver Lodge in the form of an article in the *Liverpool Daily Post* (October 4). After describing some of the ingenious devices and instruments which have made Lord Kelvin's name known to the public, Prof. Lodge refers to his more purely scientific work in the following terms:—"The modern theory of electricity, developed so brilliantly by Clerk Maxwell, was begun by him. The science of thermodynamics owes much to him; the theoretical laws of thermoelectricity were wholly worked out by him; and to him long ago is due the theory of those electric oscillations which were elaborated practically by Hertz, and have recently been exciting some popular interest as affording a method of wireless telegraphy. In the higher regions of optics also he has worked much, and in his Baltimore Lectures and elsewhere has striven to unveil the mystery of the connection between ether and matter, as revealed in the facts of radiation, fluorescence, phosphorescence, selective absorption, and dispersion. The definition and the experimental determination of the absolute zero of temperature are both due to him. The vortex theory of matter constitutes one of his most brilliant but incompletely worked out speculations. The kinetic theory of its elasticity and rigidity is a definite contribution to that view of the physical universe which seeks to resolve the whole of merely material existence into the two fundamental entities—ether and motion. Let any one ask what is the size of an atom, and he is referred to Lord Kelvin. Let him ask what is the age of the earth, and if he mean anything definite by this question—if he mean, for instance, what time has elapsed since the earth was a molten mass beginning to cool, it is again to Lord Kelvin that he must go. And then the tides; all the higher mathematical work on the tides, with their various causes and perturbations, is based on Kelvin's pioneering work, and to him all writers on this abstruse subject look up and defer as their master." The words in which Prof. Lodge concludes his article glow with appreciation. They are:—"Happy in the circumstances of his education, pertinacious in his unwearying industry, and undistracted by other interests from a constant devotion to definite dynamical science, narrow perhaps in some of its aspects, but all the more intense for that, he stands before us now a monument of human power and influence, one of the benefactors of the human species, one who has been happily preserved with hardly diminished energy for nearly sixty years of peaceful epoch-making work, one on whom posterity will heap high honours, and will regard with feelings of envy us of the present generation who are still illuminated by his living presence."

ON account of its practical importance, the influence of the chemical composition of a glass upon its coefficient of expansion has attracted the attention of several workers, more especially Fizeau, Schott, Châtenet, and Grenet. In the current number of the *Moniteur Scientifique* is an interesting *résumé*, by M. A. Granger, of the results obtained up to the present in this very complicated field. The simple rule tentatively proposed by Schott, that the expansion follows an additive law, is only approximately followed in a few cases, as quite a considerable number of substances, such as the oxides of lead, calcium, manganese, aluminium, and boron, possess the property of lowering the dilatation when added in small quantities, and raising it when the proportion is increased. The addition of either potash, soda, lithia, fluorspar, lime, or calcium phosphate raises the coefficient of expansion of a glass, but with the exception of the last, which may be added up to 20 per cent., not more than 8 per cent. can be used. For proportions higher than this, the glass either refuses to take up any more, or else becomes devitrified and opaque. Calcium borate, oxide of iron, alumina, and silica have the effect of lowering the coefficient of expansion, alumina being especially active in this respect.

The following neat result in the dynamics of impact is proved by Ingegnere D. De Francesco in the *Rendiconto* of the Naples Academy for July :— In the impact of two perfectly smooth solid bodies, the kinetic energy due to the velocities lost is a minimum compatibly with the final value of the difference of normal velocity of the points of contact. It is to be observed that the function which De Francesco proves to be a minimum is not the actual kinetic energy lost by impact, but a quadratic function of the differences of velocities before and after impact of the same form as the kinetic energy. The theorem is somewhat analogous to several of the "minimum" theorems given in the chapter on "Vis Viva" in Dr. Routh's familiar "Elementary Rigid Dynamics," and, to use a common way of speaking among mathematicians, the result "comes out in about a line."

We have received from Major-General Schaw a copy of papers read before the Wellington Philosophical Society, on Australasian weather charts and New Zealand storms. Charts were exhibited illustrating types of summer and winter storms, and showing their progress eastward from the Great Australian Bight to New Zealand. The author urges that the phenomena exhibited in these charts of horizontal motion and atmospheric pressure, need for their elucidation a knowledge of the vertical circulation. With this object he has constructed a wind vane showing the wind direction both vertically and horizontally, and has made careful observations during several months. The observations showed that at times the upward or downward inclination prevails for hours, while at other times there may be for hours no regular deviation from the horizontal. The author refers to similar experiments by Prof. A. Klossovski at Odessa, which have been noticed in our columns, but makes no mention of those made by the Rev. M. Dechevrens at Zi-ka-wei Observatory.

The Report of the Meteorological Commission of the Cape of Good Hope for the year 1897 has been published. Barometric and thermometric observations are recorded from forty-six stations, and observations of rainfall from 336 stations. As an encouragement to continuous observations, the Commission presents to observers the instruments with which they have made a series of satisfactory observations for a period of not less than five years. Among the contents of the Report, in addition to the meteorological statistics and summaries, are useful notes for the guidance of observers, prepared by Mr. C. M. Stewart, Secretary of the Commission, and a short paper by Mr. A. Struben, upon the rainfall maps of South Africa, prepared by Dr. A. Buchan. The Report is illustrated by a map showing the distribution of summer and winter rainfall in percentages of the mean annual fall over the whole of South Africa, and by diagrams showing the mean monthly rainfall in each division, and the departures from the means of 1885–94. Another report of meteorological observations lately received contains the results of observations made during 1897 in the four Government observatories at Bangalore, Mysore, Hassan, and Chitaldrug, under the direction of Mr. J. Cook. A comparison is made between the results for 1897 and the means of the weather elements at these places during the last five years.

A novel plan has recently been carried out at the Avonmouth Dock, at Bristol, for increasing the capacity of the lock so as to adapt it for the use of the larger vessels which have for the last few years been coming into use. The length between the gates of the lock, as originally constructed, is sufficient to dock a vessel 425 feet in length ; but the vessels now trading between Bristol and Canada are 465 feet long, and could therefore only enter and leave the dock at spring tides. To provide for their entering at all tides, the useful length of the dock has been increased by the adoption of a floating steel caisson which fits into grooves cut in the masonry of the lock walls beyond the outer gates, and which serves the same purpose as the gates, only giving an increased length to the space available for locking of 40 feet. This caisson is 70 feet long, 30 feet wide, and 46 feet high. When the vessel has entered the lock, the caisson is floated from its berth and placed in the grooves ; the tanks are then filled with water sufficiently to sink it on to its sill. When the locking is completed, the water is pumped out, and the caisson floated back to its berth. The steamer *Montrose*, which arrived from Canada a few days since with a large cargo of provisions, on a neap tide, and which is 465 feet in length, was the first vessel to be docked by the aid of the caisson.

The Report of Dr. D. Prain, the Director of the Botanical Survey of India, for the year 1897–98, is largely occupied by a continuation of Prof. Woodrow's Flora of Western India. He records the botanical explorations which have been made during the year of portions of Assam and Burma ; in the latter of which great assistance was rendered by Lieut. E. Pottinger, R.A.

A new edition of Mr. C. J. Woodward's "Arithmetical Chemistry," Part i., has been published by Messrs. Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. The book has been rewritten, with additions in the form of hints and suggestions for experimental work as a basis for the lessons. Elementary students of chemistry are thus instructed in laboratory methods, as well as given numerous arithmetical problems which will help to make them understand the value of quantitative work.

Vol. i. No. 2 of the *Records of the Botanical Survey of India* is entitled a "Note on the Botany of the Kachin Hills north-east of Myitkyina." It is, however, more than a "note," consisting of a record of the results of Lieut. E. Pottinger's journey through this district of Burma. After some preliminary general notes on the Botany of the Kachin Hills by Lieut. Pottinger and Dr. D. Prain, a complete list is given of the Flowering Plants and Vascular Cryptogams collected, the district proving especially rich in Orchideæ. A small map is appended.

Mr. Stanford has now concluded the arrangements for the completion of the re-issue of his "Compendium of Geography and Travel." The Europe volumes are in the hands of Mr. George G. Chisholm, who has finished Volume i., comprising the countries of the mainland (excluding the north-west), and has Volume ii., covering the British Isles, Scandinavia, Denmark, and the Low Countries, in hand. The volumes on Central and South America have been entrusted to Sir Clements Markham and Mr. A. H. Keane, and they will be furnished with the usual maps and illustrations. Mr. Stanford hopes to complete the issue of the series in the course of 1899.

From the United States we have the following botanical publications of taxonomic interest :—Revision of the Mexican and Central American species of *Galium* and *Relbunium* ; and Diagnoses of New and Critical Mexican Phanerogams, by J. M. Greenman (Contributions from the Gray Herbarium of Harvard University) ; also Onagraceæ of Kansas, by Prof. A. S. Hitchcock, with sketch-maps of the distribution of each species (in French and English, published at Le Mans). And from Australia:—Contributions to the Flora of New Guinea; Contributions to the Flora of Queensland (Fungi); and Edible Fruits indigenous to Queensland; all by F. M. Bailey.

AN elaborate illustrated catalogue of chemical and physical apparatus has been issued by Messrs. Reynolds and Branson, Ltd., Leeds. No less than three thousand separate pieces of apparatus are numbered in the catalogue, and very many of them are illustrated. The large number of physical appliances and instruments included in the catalogue is an indication of the important part which instruction in physics now takes in science schools. Teachers of practical science, more especially those working in connection with the Department of Science and Art, will find the catalogue serviceable when considering the purchase of apparatus.

M. C. SCHUYTEN publishes in the *Bulletin* of the Belgian Academy a continuation of his researches on the double salicylates of certain metals and antipyrin. He now finds that the salicylates of magnesium, of manganese and of lead, as well as certain others previously investigated, give rise to compounds with antipyrin, while he has found it impossible to realise, under the same conditions, the formation of double salicylates of aluminium, of chromium, and of uranium and antipyrin. The case of bismuth is reserved for future consideration. M. Schuyten calls attention to the instability of these compounds in which water easily promotes dissociation.

THE additions to the Zoological Society's Gardens during the past week include a Sooty Mangabey (*Cercocebus fuliginosus*, ♀) from West Africa, presented by Mrs. Henry Lloyd; a Mozambique Monkey (*Cercopithecus pygerythrus*) from East Africa, presented by Mrs. Snowden; an Indian Wild Dog (*Cyon aukhunensis*, ♂) from India, presented by Surgeon-Lieut.-Colonel J. Duke; an Egyptian Jerboa (*Dipus ægyptius*) from North Africa, presented by Mr. David Devant; a Suricate (*Suricata tetradactyla*) from South Africa, presented by Mrs. Molteno; a Golden Eagle (*Aquila chrysætus*), British, presented by the Rev. F. Foxhambert; a Black-headed Caique (*Caica melanocephala*) from Demerara, presented by Master Bertie Standing; a Common Squirrel (*Sciurus vulgaris*) from Austria, presented by Mr. A. M. Wigram; a Puma (*Felis concolor*) from America, a Reticulated Python (*Python reticulatus*) from the East Indies, deposited.

OUR ASTRONOMICAL COLUMN.

VARIABLE STARS IN CLUSTERS.—American astronomers have, during the last few years, made great advance in increasing our knowledge relating to variable stars. Nor have they limited themselves to photographic surveys of variable stars of the ordinary type, but have been examining clusters of stars to detect variability. Prof. Bailey, who has been very successful in this direction, has just undertaken a systematic search which has led him to some most interesting results (*Harvard College Observatory Circular*, No. 33). This *Circular* informs us that the whole number of stars examined in the photographs was 19,050, of which 500 were found to be variable, thus representing a variability of about 3 per cent. This at first does not seem a very high percentage, but, as Prof. Pickering points out, "it does not follow, however, that clusters in general contain more variable stars than occur elsewhere, for, if we except the four clusters ω Centauri, Messier 3, Messier 5, and Messier 15, which contain 393 variables, an average of 7 per cent., the remaining 19 clusters have 116 variables among 13,350 stars, or less than 1 per cent." Even clusters which are equally rich in stars show great differences in this respect: thus the great cluster in Hercules (Messier 13) has only two variables out of 1000 stars, while in Messier 3, of 900 stars, 132 are variable. Not only have variables in these clusters been detected, but their periods and light curves are being carefully determined. In the case of the cluster ω Centauri, which up to the present has received most attention, 150 photographs have been taken with the 13-inch, and already 10,000 measures have been made. Of the 3000 stars used in this cluster for comparison, 125 have been recorded as variable. The periods of 106 have been determined, and 98 of these have periods less than 24 hours, the largest range in variation being about 5 magnitudes; no star is included which varies less than half a magnitude. Prof. Pickering has divided these 98 variables into four classes, namely, those which have a very rapid rise to maximum, those like η Aquilæ with a secondary maximum, those whose times of increase and decrease are about equal, and lastly those which drop very suddenly from maximum to minimum: attention is called also to the marked regularity in the periods. In referring to the kind of clusters in which variables have been detected, he says that up to the present time only such dense globular clusters as Messier 3, Messier 5, and the great cluster in Hercules have been found to contain them.

LARGE METEORS IN 1897 AND 1898.—Mr. W. F. Denning in the *Observatory* for the present month brings together a number of notes concerning fireballs and bright meteors which have been observed in England during the last year and a half. In many cases sufficient and accurate information was available to enable their real paths to be determined. The radiant-points which have been derived from these observations are in most cases, as he says, very interesting, as they suggest evidence of new showers or corroboration of others previously observed.

As we have on several occasions in this column pointed out the great necessity of obtaining accurate and complete information of the path of these roving bodies through our atmosphere, so that observations may be comparable with one another, it is encouraging to read, and Mr. Denning himself is the writer, that "it is clear . . . that this department is receiving more attention than formerly. It is hoped that this interest will continue to increase, and that the fortunate spectators of fireballs will never forget to record those all-important features, viz. the direction and position of the flight amongst the stars and the duration of visibility."

REMINISCENCES OF AN ASTRONOMER.—Prof. Simon Newcomb continues in *The Atlantic Monthly* for September his reminiscences, from which we make the following few extracts. In one of his journeys to observe a total eclipse of the sun he went to Gibraltar, and one of the first things he did the morning after his arrival was to choose "a convenient point on one of the stone parapets for 'taking the sun,' in order to test the running of my chronometer. I had some suspicion as to the result, but was willing to be amused. A sentinel speedily informed me that no sights were allowed to be taken on the fortification. I told him I was taking sights on the sun, not on the fortification. But he was inexorable; the rule was that no sights of any sort could be taken without a permit." Needless to say Prof. Newcomb soon obtained the required permit, and was allowed to continue his sights without interruption.

Having some important work to do with regard to the motion of the moon, and the Franco-Prussian war being on at the time, Prof. Newcomb went to Berlin, *viâ* Naples to pass the winter, and to wait till the war was over, until he could visit Paris. Having arranged his luggage so that on landing at Naples the Custom House officer should find anything that was subject to duty at the top of his trunk, the officer contemptuously threw the top things aside, and devoted himself to a search at the bottom. "The only unusual object he stumbled upon was a spy-glass enclosed in a shield of morocco. Perhaps a gesture or a remark on my side aroused his suspicions. He opened the glass, tried to take it to pieces, inspected it inside and out, and was so disgusted with his failure to find anything contraband in it that he returned everything to the trunk, and let us off."

Speaking of Prof. Auwers, who "stands at the head of German astronomy," he says, "in him is seen the highest type of the scientific investigator of our time, one perhaps better developed in Germany than in any other country. The work of men of this type is marked by minute and careful research, untiring industry in the accumulation of facts, caution in propounding new theories or explanations, and, above all, the absence of effort to gain recognition by being the first to make a discovery." Journeying to Pulkova to visit Otto Struve, Prof. Newcomb relates many interesting reminiscences. After mentioning that